UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

FIRST INTERREGIONAL CONSULTATION ON THE FOOD-PROCESSING INDUSTRY WITH EMPHASIS ON SUGAR-CANE PROCESSING

Havana, Cuba, 26–30 September 1988

REPORT

Distr.
LIMITED

ID/362
(ID/WG.476/8)
21 October 1988

ENGLISH

PREFACE

The Second General Conference of the United Nations Industrial Development Organization (UNIDO), held at Lima, Peru, in March 1975, recommended in paragraph 66 of the Lima Declaration and Plan of Action on Industrial Development and Co-operation 1/ that UNIDO should include among its activities a system of continuing consultations between developed and developing countries, with the object of raising the developing countries' share in world industrial output through increased international co-operation. The General Assembly, at its seventh special session in September 1975, endorsed the recommendation and requested UNIDO to implement it under the guidance of the Industrial Development Board.

At its fourteenth session, in May 1980, the Industrial Development Board decided to establish the System of Consultations on a permanent basis. 2/ At its sixteenth session, in May 1982, the Board adopted the rules of procedure, 3/ according to which the System of Consultations was to operate, together with its principles, objectives and characteristics (ID/B/258, annex). Notably:

> The System of Consultations shall be an instrument through which UNIDO is to serve as a forum for developed and developing countries in their contacts and consultations directed towards the industrialization of developing countries;
>
> The System of Consultations would also permit negotiations among interested parties at their request, at the same time as or after consultations;
>
> Participants of each member country should include representatives of Governments, industry, labour, consumer groups and others, as deemed appropriate by each Government;
>
> Each Consultation meeting shall formulate a report, which shall include conclusions and recommendations agreed upon by consensus and also other significant views expressed during the discussions.

Thirty-three consultations have been convened since 1977, covering the following industries and topics: capital goods, agricultural machinery, iron and steel, fertilizers, petrochemicals, pharmaceuticals, leather and leather products, vegetable oils and fats, food-processing, industrial financing, training of industrial manpower, wood and wood products, building materials and fisheries.

1/ See Report of the Second General Conference of the United Nations Industrial Development Organization (ID/CONF.3/31), chap. IV.

2/ Report of the Industrial Development Board on its fourteenth session (Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 16 (A/35/16)), vol. II, chap. XI, para. 153.

3/ Report of the Industrial Development Board on its sixteenth session (Official Records of the General Assembly, Thirty-seventh Session, Supplement No. 16 (A/37/16)), chap. IV, para. 46.

CONTENTS

	Paragraphs	Page
PREFACE		1
INTRODUCTION	1-7	4
AGREED CONCLUSIONS AND RECOMMENDATIONS	8-40	6
Chapter		
I. ORGANIZATION OF THE CONSULTATION	41-49	11
II. REPORT OF THE PLENARY SESSIONS	50-64	14
III. REPORT OF THE WORKING GROUP ON ISSUE 1: DIVERSIFICATION OF THE SUGAR-CANE INDUSTRY	65-85	17
IV. REPORT OF THE WORKING GROUP ON ISSUE 2: IMPROVEMENT OF THE PRODUCTIVITY IN THE SUGAR-CANE SECTOR	86-97	20
Annexes		
I. List of participants		22
II. List of documents		30

INTRODUCTION

1. The First Interregional Consultation on the Food-Processing Industry with Emphasis on Sugar-cane Processing was held at Havana, Cuba, from 26 to 30 September 1988. The Interregional Consultation was attended by 118 participants from 45 countries and international and other organizations (see annex I). It was held at the invitation of the Government of Cuba, with the co-operation of the Group of Latin American and Caribbean Sugar Exporting Countries (GEPLACEA).

Background to the First Interregional Consultation

2. The Industrial Development Board, at its second session in October 1986, decided to include the First Interregional Consultation on the Food-Processing Industry with Emphasis on Sugar-cane Processing in the programme of consultation meetings for the biennium 1988-1989. 1/

3. An Expert Group Meeting for the Latin American and Caribbean Region, in Preparation for the First Consultation on the Sugar-cane Processing Industry, was held at Vienna, Austria, from 8 to 10 December 1987. The meeting was organized in close co-operation with GEPLACEA.

4. Also, an Expert Group Meeting for the Asian and the Pacific Region, in Preparation for the First Consultation on the Sugar-cane Processing Industry, was held at Guangzhou, China, from 22 to 24 March 1988. The meeting was organized in close co-operation with the Guangdong International Economic and Technical Corporation and the Sugarcane Industry Research Institute of the Ministry of Light Industry, and hosted by the Guangdong Provincial People's Government.

5. The objectives of the meetings were:

(a) To discuss the present situation of the sugar-cane processing industry, with special emphasis on the diversification of the industry and the potential for expanding the use of by-products for various purposes;

(b) To discuss the potential for, and prospects for, applying new cost and energy-saving technologies aimed at reducing production costs;

(c) To identify common and specific constraints that hamper the development of the sugar-cane processing industry in the developing countries of the region;

(d) To examine and propose ways and means of international co-operation and actions needed to overcome identified constraints;

(e) To select specific issues for further elaboration and discussion at the Interregional Consultation.

6. Global and regional surveys on the situation of the sugar-cane industry and its diversification in Asia and the Pacific, the Caribbean and Latin America were prepared by the UNIDO Secretariat, in collaboration with GEPLACEA and the International Trade Centre (UNCTAD/GATT); national reports were prepared for the two meetings by experts.

1/ "Report of the Industrial Development Board on the work of its second session, 13 to 23 October 1986" (GC.2/2), annex I.

7. Taking note of the complexity and wide spectrum of problems facing the sugar-cane industry in the regions, the experts identified the following two main groups of issues connected with the development of the sector that should be considered by the Interregional Consultation at Havana:

Issue 1: Diversification of the sugar-cane industry, aimed at:

(a) Diversification in all aspects;
(b) Production and utilization of sugar-industry by-products;
(c) Improvements in the utilization of sugar;
(d) Socio-economic problems;
(e) Domestic and export market aspects;
(f) Financing;
(g) International co-operation;
(h) Information exchange and transfer of technology;
(i) Institutional arrangements.

Issue 2: Improvement of the productivity in the sugar-cane sector, aimed at:

(a) Reducing production costs;
(b) Increasing yields;
(c) Rational energy utilization;
(d) Improving the quality of products;
(e) Improving infrastructure.

AGREED CONCLUSIONS AND RECOMMENDATIONS

Issue 1. Diversification of the sugar-cane industry

8. Taking into account the serious structural problems being faced by the sugar-cane industry as a result of the reduction in consumption, the increasing demand for sugar substitutes, as well as the difficulties encountered by sugar-exporting countries in gaining access to international markets due particularly to protectionist schemes, which are being taken into account by other international organizations, there is an urgent need for developing coherent programmes of diversification.

9. Diversification means the integral use of the sugar-cane plant, the optimization of the use of the by-products of the manufacture of sugar, and the use of sugar itself and of the sugar-cane plant as raw materials for transformation into other valuable products in terms of economy and social impact. It also means the optimum use of land under cane, for example, inter-line cultivation.

10. Diversification in this context is not understood as meaning the replacement of sugar-cane by other crops.

Conclusions

11. The importance of developing coherent programmes of diversification, taking into account the specific conditions of each country, is recognized. There is also a need to develop strategies and policies that ensure such programmes of diversification.

12. Considering the structural changes in demand and the fluctuation in sugar prices taking place worldwide, there is a need for a detailed analysis of domestic and international markets before embarking on programmes of diversification, and to make sure of the absorption capacity of the industrial network and the local infrastructure. The modernization of existing facilities should be undertaken in support of such diversification programmes.

13. Many specific, technically viable industrial-diversification-project possibilities exist, based on the utilization of bagasse, molasses, filter mud and other sugar by-products, and the production of parts and components for the sugar industry. The choice of projects to be implemented by a particular country will, however, depend on appropriate feasibility studies. More attention should be given to the analysis of the different technological alternatives before undertaking programmes of investment. There is also a need to analyse different financing possibilities in order to promote viable investment projects.

14. The importance of improving the efficiency of agricultural production is emphasized within the framework of developing integrated programmes of diversification. Also the need is emphasized to increase efficiency in the utilization of bagasse and energy. Intercropping agriculture is also recognized as a factor to be considered. There is also a need to strengthen the dissemination of information.

15. Closer international co-operation, with emphasis on the regional and interregional levels, should be encouraged in order to ensure coherent and viable programmes of diversification.

Recommendations

16. Programmes of diversification should be developed within the context of strategies and policies conceived within the framework of integrating the sugar industry into the local economic structure and, in many cases, within integrated rural development. Such strategies and policies should take due account of the specific conditions of each country. The strategies and policies for diversification should take due account of the positive and negative social and economic factors that it could generate. For the implementation of these strategies and policies, an appropriate institutional framework should be developed in order to guarantee co-ordination between the different institutions and organizations involved. In the case of the least developed countries, strategies and policies should focus inter alia on the satisfaction of the food requirements of the population.

17. On establishing programmes of diversification, comprehensive market studies should be carried out of products that appear to have viable prospects for local manufacture based on the availability of local raw materials and other inputs. These market studies should be based on a careful analysis of all relevant and existing data and information so as to determine realistic projections of demand that are important to determine viability.

18. When selecting technology, all available technological alternatives with regard to size and complexity should be explored, taking into account the different linkages within the sugar-agro-industry complex and those within the rural and industrial framework and the infrastructure, as well as the final destination of the production. In the selection of technology, special emphasis should be placed on the size of plants in order to permit the development of coherent programmes for developing the sugar-cane industry in rural areas and other low-income communities. Therefore, international agencies like UNIDO should look into the most suitable kind of technology so as to facilitate its transfer to needy countries.

19. With regard to the critical financial constraints for diversification and rehabilitation, countries should: (a) promote self-finance for rehabilitation; b) develop mechanisms of barter agreements for implementing new investment projects, where appropriate; and (c) undertake feasibility studies to seek funds from regional and international financial institutions on concessionary terms, based on coherent plans and programmes for diversification.

20. In order to make the development of integrated programmes of diversification viable, appropriate varieties of sugar-cane should be introduced according to the specific conditions of each country and the type of final and main products to be produced. When sugar-cane varieties are introduced, the results obtained with those varieties in other countries should be analysed, and the need to comply with quarantine requirements borne in mind.

21. Taking into account the potential economic benefits of the use of intercropping and the rotation of crops with sugar-cane, each country should explore the possibilities in these areas in order to satisfy specific demands.

22. An efficient energy-balance within the traditional sugar industry could permit important economies in bagasse-fuel utilization and should therefore be established before implementing any programme of diversification based on the use of bagasse.

23. In order to ensure a proper development of programmes of diversification, efforts should be made to improve the utilization of existing national, regional and international information set-ups in the technical, economic, commercial and financial fields.

24. On the basis of the experience accumulated in sugar-cane in developing countries, UNIDO/GEPLACEA and other regional institutions should promote co-operation between the producers of sugar-cane in the fields of information, research, development of pilot plants, production of capital goods, and the definition and implementation of programmes of diversification. For this purpose, due account should be taken of existing institutions. Co-operation between developing and developed countries should be encouraged basically in the field of new technologies and training to master them. This could also include financial arrangements.

25. UNIDO should be requested to establish a committee consisting of experts representing the different regions in order to assist developing countries in promoting:

(a) South-South and North-South co-operation;

(b) Capabilities in engineering and consultancy services;

(c) The increased flow of financial resources for a diversification programme;

(d) Training and technical assistance;

(e) Research and development and the dissemination of information.

Issue 2. Improvement of the productivity in the sugar-cane sector

Conclusions

26. The Working Group agrees that, in view of the critical situation of the sugar-cane industry in developing countries, there is an urgent need to improve the sector's productivity.

27. The Working Group considers that there is no universal remedy to improve the sector's productivity and that the specific conditions of each country and sugar complex should be taken into consideration.

28. The improvement in agronomy, for example, the introduction of appropriate varieties, rational fertilizer application, pest control and disease management, and adequate irrigation and drainage systems will greatly contribute to the higher efficiency of the sector.

29. There is considerable scope for efficiency improvement in all stages of the cane-sugar-production process, in particular the transportation of cane, extraction, purification, and steam generation and use etc.

30. Measures to improve the quality of intermediate and final products must take into consideration the market requirements, on the basis of internationally recognized analytical methods.

31. Training programmes with particular emphasis on maintenance are considered a main element in corporate strategy.

32. The introduction of modern information techniques, particularly micro-computers, offer additional opportunities for resource management.

33. Sugar-cane producers, as well as research centres, possess experience and information, which should be utilized for mutual benefit.

Recommendations

34. Governments, industry, professional institutions and international bodies should:

(a) Aim at a better insertion of the sugar-cane industry into the rest of the national economy;

(b) Create a favourable economic and fiscal environment for the investments needed to upgrade the efficiency of the sugar-cane industry;

(c) Promote coherent national policies on education, manpower training and management as a principal instrument to improve the efficiency of the sector;

(d) Assist in securing the necessary funds for projects for efficiency improvement, particularly in infrastructure.

35. The implementation of efficiency-improvement measures should be preceded by a case-by-case economic evaluation and an assessment of operational feasibility. In this context, opportunities offered by revamping and rehabilitation projects should be used to introduce better adapted technologies, machinery and equipment.

36. Efforts should be undertaken to achieve a better energy balance within the sugar complexes in developing countries.

37. Preventive maintenance, by providing a large potential for improving operational efficiency and reducing the costs of spare parts, should be made more effective. To this effect training programmes with particular emphasis on maintenance and the local manufacture of spare parts should be strengthened.

38. Better linkages between research centres, extension services and the sugar-cane industry should be sought to accelerate the application of R and D results.

39. The vast body of experience and accumulated information and the infrastructure for research facilities should be utilized by sugar producers for their mutual benefit.

40. The Working Group recommends closer co-operation between international organizations involved in the sector, namely, ILO, FAO and UNIDO and other relevant agencies. The following areas in which they could render assistance are:

(a) Setting up technical training programmes in the sector, giving priority to problems of maintenance;

(b) Facilitating, through appropriate means, the exchange of information and experience and the utilization of research facilities within the sugar industry;

(c) Expanding technical assistance programmes directed to productivity improvement in such areas as process technology, energy efficiency, management cost accounting, maintenance, quality control, and the upgrading of skills;

(d) Directing more attention to the agronomic and related problems of the industry in developing countries, by promoting programmes oriented towards the improvement of agricultural techniques, the exchange of cane varieties, and irrigation and environmental protection.

I. ORGANIZATION OF THE CONSULTATION

Opening of the Interregional Consultation

Statement on behalf of the Director-General of UNIDO

41. The Deputy Director-General, Department of Industrial Operations, in a statement presented on behalf of the Director-General of UNIDO, said that the production of sugar as a product both for export and internal consumption was a branch of the economy of strategic importance in a growing number of developing countries. He noted, however, that the sugar-cane industry was faced with a crisis of growing proportions caused by low prices, rising costs of production, declining consumption and the introduction of alternative sweeteners, all acting as a disincentive for the proper development of the sector. In that light, the search for higher productivity and diversification into by-products offered real opportunities for the development of the sector. With respect to industrialization, he observed that the introduction of new technologies, such as the industrial application of biotechnology, micro-electronics and data processing and the use of new materials, would contribute to improving the productivity of the sector. Finally, he expressed the hope that the deliberations of the Interregional Consultation would result in action-oriented recommendations and the identification of areas of international co-operation that could contribute to the national efforts of the sugar-producing countries to develop that vital industry.

Statement by the Executive Secretary of GEPLACEA)

42. The Executive Secretary of GEPLACEA, in his introductory remarks to the Interregional Consultation, said that a solution to the problems confronting the sugar industry could only be envisaged if simultaneous progress was made on three fronts. First, international efforts must be undertaken in the defence of market prices. Secondly, diversification must be sought to the extent feasible to develop new products and markets. Thirdly, the first two steps must necessarily be accompanied by measures to improve the efficiency of all the phases of the industry by modernization and the adoption of new technologies. He noted that the countries belonging to GEPLACEA had already played a pioneering role in the various phases of the industry but that much remained to be accomplished. He expressed the willingness of GEPLACEA to put its know-how and experience at the disposal of other developing countries. Finally, he drew the attention of the participants to the profound structural changes that were at work in the global pattern of consumption and production, which would have far-reaching consequences for the future evolution of the sector.

Statement on behalf of the Government of Cuba

43. The Vice-President of the Executive Committee of the Council of Ministers of the Republic of Cuba, after welcoming the participants to the Interregional Consultation, stated that that event would stimulate new forms of co-operation, which would lead to a better definition of strategies needed to develop the sector. He underlined, in the context of diversification, the potentially important role of sugar as both a raw material and an energy resource. He further stressed the need for finding concrete solutions to the prevailing crisis of the sector, which was inextricably linked to the very economic well-being of exporting countries. He identified the system of subsidy of the European Economic Community and the protectionism of the United States of America as the major causes of the market depression. As a consequence of those practices, he cited the fact that, in many importing nations, the price

paid by final consumers represented many times the price on the international market. He noted that international organizations, notably those of the United Nations system, could play an important role in efforts aimed at arresting recent trends and at developing that crucial industrial sector in the economies of sugar-exporting countries.

Election of officers

44. The following officers were elected:

Chairman:	Gilberto Llerena (Cuba), Viceministro, Ministerio del Azúcar
Rapporteur:	Gowreeshankursing Rajpati (Mauritius), Executive Director, Mauritius Sugar Authority
Vice-Chairmen:	Poerwadi Djojonegoro (Indonesia), President, Private Sugar Enterprises XXIV/XXV
	Mikhail Puzikov (Union of Soviet Socialist Republics), Deputy Director, Sugar Industry Department, USSR GOSAGROPROM
	Christian Sauzereau (France), Directer-Général, Société d'aménagement et de développement rural et agro-industriel

Statement by the Chairman of the Interregional Consultation

45. The Chairman thanked the participants for his election. He noted the importance attached by the developing countries to the System of Consultations, which constituted a valuable framework for identifying problems related to specific industries and could make a significant contribution to closer industrial co-operation between the countries of the world in accordance with the Lima Declaration and Plan of Action. The Lima Declaration was a programmatic document in the area of industrialization and its importance should not be overlooked. He urged the participants to work together to ensure that the Interregional Consultation would be a success. The achievement of concrete, practical results should be the main objective.

Adoption of the agenda

46. The Consultation adopted the following agenda:

1. Opening of the Interregional Consultation
2. Election of Chairman, Vice-Chairmen and Rapporteur
3. Adoption of the agenda and organization of the work
4. Presentation of the issues by the UNIDO Secretariat
5. Discussion of the issues:

   Issue 1: Diversification of the sugar-cane industry

   Issue 2: Improvement of the productivity in the sugar-cane sector

6. Other matters

7. Conclusions and recommendations

8. Adoption of the report of the meeting

Establishment of working groups

47. The Consultation established two working groups to discuss the issues and to propose conclusions and recommendations for consideration at the final plenary. Poerwadi Djojonegoro (Indonesia) chaired the working group on issue 1, and Christian Sauzereau (France) chaired the working group on issue 2.

Documentation

48. The documents issued prior to the Consultation are listed in annex II.

Adoption of the report

49. The report of the First Interregional Consultation on the Food-Processing Industry with Emphasis on Sugar-cane Processing was adopted by consensus at the final plenary on 30 September 1988.

II. REPORT OF THE PLENARY SESSIONS

Presentation of the issues

Statement by the Director of the System of Consultations Division, UNIDO

50. The Director of the System of Consultations Division, UNIDO, pointed out that the System was engaged in a continuous search for new approaches and methods to accelerate the process of industrialization in developing countries. The System provided a unique opportunity for policy makers and industrialists to address the problems of, and to assess the potential of, specific industrial sectors. He was particularly gratified by the fact that 60 per cent of the participants at the Interregional Consultation were representatives of industry. Such participation boded well for the quality of the results expected from the meeting. He identified technology, financing and marketing as constituting the hard core of constraints on the development of the sugar-cane industry. Those impediments and related aspects, which would represent the subjects of deliberation for the rest of the meeting, could only be overcome in a collaborative spirit devoid of pre-conceptions and fixed positions.

51. He concluded by urging the participants to capitalize on the many opportunities offered at the Interregional Consultation for informal dialogue directed to questions of technical assistance and investment promotion in the sector.

Issue 1. Diversification of the sugar-cane industry

52. A member of the UNIDO Secretariat introduced the issue. He outlined the major problems of the sugar-cane processing industry and the specific constraints hampering its prospects in developing countries. He noted that, in spite of recent drawbacks in implementing structural changes in the sector, diversification and integrated processing techniques continued to offer large potential for the development of the industry in developing countries. Diversification also presented a much needed response to recent declines in export earnings in the light of depressed market conditions. He concluded by stressing that, in spite of a wide range of possibilities, it was necessary to consider all the components for outlining a coherent and long-term programme of diversification for the industry.

Issue 2. Improvement of the productivity in the sugar-cane sector

53. A member of the UNIDO Secretariat introduced the issue. He highlighted the principal factors affecting productivity in the sugar-cane-processing industry. He noted that the sector had experienced a steady decline in productivity through an absence of technological innovations. In the wake of oversupply and depressed price levels, however, the situation had become unsustainable, necessitating improvements in efficiency in all segments of the industry from energy utilization, product design and infrastructure to marketing services. He concluded that national and regional efforts employed in that regard could greatly benefit from multilateral assistance, as well as from that of specialized institutions.

Summary of discussion

54. One participant stressed the interest that enterprises in his country had expressed in the preparation of the Interregional Consultation. Based on their experiences, they considered that co-operation should be pragmatic and, in particular, approached on a case-by-case basis.

55. Those enterprises were prepared to place their know-how, research potential and technology at the disposal of the developing countries. Rather than proposing a merely theoretical approach, they proposed flexible methods that could be adapted to the various problems posed with regard to both the study of the prospects for diversification and the improvement of production processes.

56. The enterprises had created different types of equipment, some of which, like the diffuser, were used around the world. They had also developed evaluation techniques for computerized production processes and methods for training industrial personnel.

57. The participant stated that the restructuring of the sugar industry must include agricultural techniques, within the framework of overall rural development. The industrial process must also be considered.

58. Diversification required a knowledge of the needs for, and possibilities of, using and assessing different products, which depended on the existence of an industrial framework. The participant stressed the importance of regular exchanges of information and emphasized the role that UNIDO could play as a contact point in that regard.

59. Another participant gave a brief account of his country's research, equipment design and project development capabilities in the sugar-cane industry, which provided vital material support to the integrated development of the sector. As to the problems of the industry, he identified the gathering pace of protectionism practised by some industrialized countries, with the resultant price depression, as the root cause of dislocation and instability. That situation was further heightened by the fact that international sugar prices were expressed in a currency that was subject to unpredictable gyrations. He also cited the lack of adequate mechanization, often limited to animal traction, as another major constraint affecting many sugar-producing developing countries. After describing the prevailing situation and the future outlook of the sector in his country, he proposed a strategy for the devlopment of the industry. The major components of the proposal included the obtaining of appropriate varieties, the rational use of soils, the integral control of weeds, and irrigation and mechanization etc.

60. Representatives of GEPLACEA considered various aspects of the industry, particularly those related to an assessment of markets, diversification and the financial requirements of the industry. In that context, it was pointed out that the increased availability of supplies on the world markets was accompanied by stagnant or even declining rates of consumption. That process was further aggravated by efforts undertaken by an increasing number of countries to attain self-sufficiency, which were not always economically justified, and by the aggressive penetration of the market by sugar substitutes. On the question of diversification, it was recommended that an in-depth identification of the possibilities existing in each country should be undertaken and supplemented by specific feasibility studies. The creation of regional data banks spanning all phases of the industry could also contribute to a more efficient flow of information, as a necessary component in an integrated approach for the revival of the industry.

61. Another representative of GEPLACEA discussed the crucial issue of the financial requirements of the sugar-cane industry. After reporting on the issue being debated within his organization, he tackled the various aspects associated with raising funds for the sector from domestic, regional and international sources. In that context, he advocated the creation of

tailor-made financial institutions to correspond to the specific financial requirements of the sugar-cane industry.

62. A number of participants commended the UNIDO Secretariat for both the initiative taken in convening the Interregional Consultation and the quality of the documentation presented. One participant, after underlining her Government's commitment to international co-operation, noted the inevitability of a redefinition of industrial strategies in the sugar-cane sector in view of global overproduction and the saturation of markets. The principal constraints affecting the sector were identified as: the contraction of export outlets; increased competition from other agricultural products, notably sugar-beet; the market penetration of substitutes for sugar; and, finally, the entry of new producers. Diversification into other products, and the adoption of new and improved technologies by sugar-cane producers had, therefore, become imperative. The mechanism to implement the necessary changes involved both bilateral and multilateral co-operation rendered by international agencies. Of particular relevance was the role of innovations by research and development. In conclusion, the same participant identified the following areas as particularly relevant to the future performance of the sector, namely, the exchange of experience and information between producers; the integration of the industry into local and national environments; industrial maintenance and the training of human resources; the adoption of new technologies and processes; and, finally, technical assistance for diversification.

63. A representative of the International Commission for Uniform Methods of Sugar Analysis (ICUMSA) stressed the importance of the analytical techniques in sugar processing and the marketing of cane sugar. After briefly describing the organization and its work, the representative noted that ICUMSA could provide two essential services to the sugar-cane-producing community: first, proven analytical techniques and, second, extensive research findings of work undertaken worldwide for a better transfer of processing technologies.

64. Another participant expressed the view that the sugar industry was undergoing a crisis caused by low price levels and rising production costs. Those countries whose sugar exports constituted a major share of their economy were therefore facing serious economic and social problems. With respect to the improvement of productivity, he noted that efforts must concentrate on the field level through improved varieties, better adapted extension services, and the adoption of new farming technologies etc. In his view, the diversification of the sugar industry held much promise for the economic viability sought through its two main by-products, namely, bagasse and molasses for the production of pulp and paper, and alcohol.

III. REPORT OF THE WORKING GROUP ON ISSUE 1: DIVERSIFICATION OF THE SUGAR-CANE INDUSTRY

65. Reference was made by several participants to the need for very specific approaches when establishing diversification programmes for the sugar-cane industry. It was emphasized that, since the problems faced by the sugar-cane industry were structural, in the process of designing national, regional or international strategies and policies to implement diversification programmes, the specific requirements and resources of each country should be taken into account.

66. Some participants pointed out that any attempt to establish standard diversification programmes and projects for different countries, extrapolating specific experiencies of some individual producers, might be very unproductive, and should be strongly avoided.

67. A number of participants from developed and developing countries pointed out that, before any diversification programme for the sugar-cane industry was initiated, the technical-economic and market feasibility of individual projects, especially the availability of a market to absorb the diversified products, should be carefully looked into. One representative of a developed country emphasized the importance of the linkage between the availability of project financing schemes from Governments of developed countries and technology suppliers and the existence of markets for the new industrial products to be developed.

68. Most of the participants agreed upon, and brought forward, specific examples to illustrate the fact that several technological alternatives for establishing diversification projects were already available. Some participants and a representative from a regional organization presented specific diversification projects that could be considered successful.

69. Emphasis, however, was placed by several participants on the fact that in order to initiate a diversification programme based on the utilization of sugar-cane bagasse, a very efficient energy balance within the industry had to be achieved. A representative of a developed country provided a very concrete case and data on the improvement of energy efficiency within a sugar manufacturing plant.

70. A representative of an important sugar-producing country, illustrating that country's own experience, pointed out that energy efficiency in the sugar-cane mill was the first step towards establishing a successful bagasse-processing industry. It had been observed that the application of co-generation energy should reflect individual country/industrial-plant needs and should be studied on a case-by-case basis.

71. Two participants pointed out that the use of sugar-cane bagasse as a source of energy in some countries should provide a solution to important environmental problems such as the deforestation of natural resources.

72. Different technology requirements to cover all possibilities of diversification - from the least expensive solutions, such as the production of animal feed, to the more complex fermentation processes and sucro and alcohol chemistry - were briefly discussed by the participants. Emphasis, however, was laid on the fact that no diversification programme would be successful if very efficient and highly productive sugar mills were not established and the level of available personnel was not upgraded.

73. Some participants emphasized that the use of advanced technologies, as for instance biotechnology and micro-electronics, would have to be considered in order to update continuously the level of technology applied within the sugar-cane industry.

74. Some participants provided concrete examples of the financial aspects of diversification, which illustrated the point that, in order to proceed with any diversification programme, effective financing schemes, reflecting individual needs, should be explored. More North-South financial co-operation, within a framework of technology transfer, should be sought.

75. A proposal was made by a regional organization that, when the transfer of diversification technology between developing countries that were producing sugar was discussed, alternative financing, such as barter schemes, should also be considered. After some discussion, agreement was reached on the point that international organizations involved in technology transfer, trade and the development of human resources, as well as international development banking, should also have an important role in the provision of financial support for the establishment of effective diversification programmes.

76. Several participants emphasized the need for an efficient and high production of raw material in order to proceed with the establishment of a diversification programme. Two participants mentioned their experience and other known experience in the development of new varieties of sugar-cane where not only the sugar content was emphasized, but also its high fibre content, which was already a reorientation of the research, in line with the new needs of the sugar industry.

77. Special emphasis was given by some participants to the diversification already being carried out by several countries at the agricultural level of the sugar-cane industry. Alternative crops were being intercalated with some sugar-cane plantations with very positive results. The proper selection of the crops, besides the technical agro-climatic factors, was referred to by a participant, who pointed out that selection should take into account and reflect the different needs of countries involved in the diversification programme, as for instance the export of food crops, according to the coun7ries' objectives and needs.

78. Several participants pointed out the importance of having more effective information systems on the technology, market, economic and financial aspects of diversification. After some discussion, agreement was reached that not only should the available information sources be used but also co-ordination between them sought. A representative from a regional institution emphasized the need for establishing a reliable data bank on the subject, and mentioned the ready availability of all the information compiled by that institution to all participants, including the international organizations.

79. After some discussion, it was proposed by some participants that, in order to carry out any programme of diversification for the sugar industry, emphasis on the upgrading of available human resources and the development of skilled personnel to satisfy the new needs of industry should be developed.

80. A participant from a developing country suggested that, for some countries that were not major sugar producers and whose production costs were high, fiscal policies to equilibrate domestic prices should be used. A participant from a regional organization pointed out that one of the major constraints affecting the external market for processed products from the sugar industry, such as alcohol, was the import taxes adopted by some

developed countries, and proposed that price liberalization for those products should be introduced.

81. Participants from two important sugar-cane-producing countries pointed out clearly that the production of sugar would remain a relevant sub-sector of many developing economies and that all efforts should be made to stimulate technological integration and dissemination in order to develop the industry further. South-South and North-South co-operation, as well as strategic support from international organizations, should be considered in order to achieve the major objective.

82. One participant pointed out that it was essential that the concept of diversification should be clearly defined. The following definition of diversification was proposed:

> "Diversification means the integral use of the sugar-cane plant, the optimization of the use of the by-products of the manufacture of sugar, and the use of sugar itself and of the sugar-cane plant as raw materials for transformation into other products. It also means the optimum use of land under cane, e.g. interline cultivation."

83. It was emphasized that the development of diversification programmes in no circumstances meant that traditional sugar producers should withdraw from the production of sugar but rather that they should focus on the identification of alternative uses for a traditional crop.

84. Another participant stressed that it was, nevertheless, for each country, taking into account its economic and rural structures and agronomic and technological conditions, to determine whether it would be desirable to explore possibilities for new activities outside the sugar-cane area.

85. A presentation of the future prospects for the alcohol-chemistry industry was made by a representative of a regional organization, followed by a short discussion on the financial feasibility of the industry compared with petrochemistry.

IV. REPORT OF THE WORKING GROUP ON ISSUE 2: IMPROVEMENT OF THE PRODUCTIVITY IN THE SUGAR-CANE SECTOR

86. Some participants observed that mechanization was one of the ways of increasing productivity in the sugar-cane-processing sector. The introduction of new techniques, equipment, automation in the cane fields and factories etc. should be considered not as a costly and capital-intensive action for a short period of time but as an investment for the long-term development of the sector; it would also contribute to the reduction of labour costs.

87. Some participants pointed out, however, that in some special cases, the massive introduction of sophisticated know-how and modern technology might undermine the process of job-creation and might generate social and economic problems.

88. Attention was drawn to the agricultural aspects of the sugar-cane industry: the use of proper varieties of sugar-cane, fertilizers, herbicides and irrigation systems might greatly increase the yields leading to a drastic rise in productivity and efficiency in the sector. In that connection, the participants emphasized that the dissemination of information on the agricultural aspects was vital for the further development of the sugar-cane industry. It was recommended that a comprehensive analysis of local soil and climatic conditions should be made to select the most appropriate way of developing the sector.

89. Following the characterization of the problems affecting the sugar industry, the participants drew attention to the issue of the scale of production and its influence on production costs. It was observed that there was no general rule and each case should be analysed individually.

90. The participants stressed that emphasis should be placed on the importance of the exchange of technical information, experience and knowledge, not only on a South-South but also on a North-South basis, because it had become evident that, even within a given region, the existing interregional disparities and differences in levels of development were pronounced. International co-operation might advantageously be focused on encouraging and supporting activities and programmes by means of which developing countries would receive technical assistance and financial aid for the introduction of new technologies, modernization of industry, improvement of productivity and human resource training including management.

91. Changes had to be deliberately sought regarding the role of research centres, their effectiveness, the co-ordination of their activities and their interactions with final users. It would be desirable to draw up programmes of co-operation between them, covering the exchange and dissemination of information with the aim of providing developing countries with adequate knowledge and expertise on productivity and technology.

92. The need for international co-operation was underlined. In that connection, UNIDO and other international organizations should play an enhanced role as co-ordinating centres to improve the performance of the sugar-cane industry. These organizations could assist national Governments in the tasks of promoting interregional investments among sugar-producing developing countries, exploring the funding possibilities for specific projects, and facilitating their access to such funding sources. It was noted that international agencies and UNIDO should stimulate the exchange of technologies, technical training and expertise for the better planning of national programmes.

93. The participants discussed the crucial problem of efficiency in energy utilization in the sugar-cane-processing industry, as it was critical to productivity increases. The optimum use of generation facilities, the introduction of energy-saving techniques and the co-generation of renewable sources of energy might provide the sector with higher efficiency and productivity. Stressing the need to modernize and rehabilitate energy equipment, some of the participants emphasized that not all technologies available in developed countries might be adopted in Africa, Asia or Latin America owing to the specific characteristics of the sector in those regions. Some of the participants suggested that the establishment of a centre or office for international consultancy and technical assistance in the appropriate use of energy and equipment and for the training of personnel should be considered.

94. A number of participants offered their expertise, technical assistance and know-how in the sector to upgrade its productivity and efficiency.

95. Some participants expressed their concern relating to the problems experienced in the storage and preservation of sugar stocks. It was pointed out that large losses occurred as a result of inadequate storage facilities and equipment.

96. It was stated that the prospects for the successful development of the sector also depended largely on the availability of adequate economic and social infrastructural arrangements.

97. Other participants from developing countries drew attention to the difficulties they had experienced in marketing their products to the sugar-consuming sector of the food industry because of considerations of quality.

Annex I

LIST OF PARTICIPANTS

Afghanistan

Ghulam Sakhi Karimi, President (Projects), Ministry of Light and Foodstuff Industries, Silo Road, Kabul

Angola

Ananias De Sá E. Vasconcelos, Chefe de Divisão, Ministério da Indústria, Luanda

Argentina

Esther Rivas, Jefa de Departamento Acuerdos Internacionales por Productos, Dirección Nacional de Negociaciones Económicas Multilaterales del SICE, Julio A. Roca 651, Buenos Aires

Belgium

José Libert, Secrétaire général, Conseil central de l'économie, Avenue de la Joyeuse Entrée 17, B-1040 Bruxelles

Ginette Parent-Colson, Fonctionnaire, Conseil central de l'économie, Avenue de la Joyeuse Entrée 17, B-1040 Bruxelles

Benin

Apollinaire Hacheme, Chargé d'affaires, Ambassade du Bénin, La Havane, Cuba

Kegnide S. Sabiton Alao-Fary, 2ème Conseiller, Ambassade du Bénin, La Havane, Cuba

Bolivia

Lorgio Talavera Soliz, Gerente General, Ingenio Azucarero Guabira, Av. Monseñor Rivero 21, Santa Cruz

Baldo Román Hourthe, Asesor, Corporación Regional de Desarrollo de Santa Cruz (CORDECRUZ), Av. Omar Chávez/Pozo, Santa Cruz

Brazil

Julio Santo, Diplomat, Brazilian Embassy, Havana, Cuba

Bulgaria

Chavdar Papazov, Jefe de Buró, Oficina Comercial de Bulgaria, Edif. FOCSA, 18 E., Vedado, La Habana, Cuba

Vasilev Lyuben, Oficina Comercial de Bulgaria, Edif. FOCSA, 18 E., Vedado, La Habana, Cuba

Cameroon

Ahmadou Ahidjo Sali, Directeur financier, Cameroun Sugar Company (CAMSUCO), B.P. 1462, Yaoundé

China

Chen Shi Zhi, Senior Chemical Engineer, Sugarcane Industry Research Institute, Ministry of Light Industry, Chigan, Henan, Guangzhou

Congo

Eric Gakegne, 1er. Secrétaire, Ambassade du Congo, La Havane, Cuba

Côte d'Ivoire

Joseph Kra Kouame, Président, Directeur Général, SODESUCRE, B.P. 2164, Abidjan

Cuba

Gilberto Llerena, Viceministro, Ministerio del Azúcar, Calle 23 y N, Vedado, La Habana

Elena Blanco Díaz, Subdirectora, Desarrollo de Mercado CUBAZUCAR, Calle 23 No. 55, Vedado, La Habana

Oridio Caballero Pérez, Director, INICA, Instituto de Investigaciones de la Caña, Avenida Van Troi 1703, Boyeros, La Habana

Eduardo Casanova Cabezas, Subdirector de Investigaciones, Instituto Cubano de Investigaciones Azucareras, Ministerio del Azúcar, Calle 23, Edificio Jesús Menéndez, La Habana

Israel Cepero, Director, Instituto Cubano de Investigaciones Azucareras, P.O. Box 10154, Quivicán, La Habana

Eduardo Delgado, Director de Organismos Internacionales, Ministerio del Comercio Exterior, Infanta No. 16, Vedado, Plaza, La Habana

Eduardo Delgado, Vice Director IPROYAZ, Instituto de Proyectos Azucareros, Ministerio del Azúcar, Carr. M. Martínez Prieto, Km. 2 1/2, Boyeros, La Habana

Nancy Fernández Rodríguez, Director, Cuba 9 Project, Ministerio del Azúcar, Pablo Noriega Sugar Mill, Quivicán, La Habana

Jesús Fonseca, Subdirector, Instituto de Investigaciones de la Caña de Azúcar, Calle 146 No. 513, Playa, La Habana

Luis Gálvez, Director, ICIDCA, Vía Blanca No. 804, San Miguel del Padrón, La Habana

Oscar Luis García, Vicedirector, Cuba-9 Research Centre for Bagasse Industrialization, Central Pablo Noriega, Quivicán, La Habana

Leonel González, Deputy Director, ICIDCA, Vía Blanca No. 904 y C. Central, La Habana

José Lago, Subdirector de Organismos Internacionales, Ministerio del Comercio Exterior (MINCEX), Infanta No. 16, Vedado, Plaza, La Habana

Paulino López Guzmán, Funcionario de Ciencia y Técnica, Ministerio del Azúcar, Calle 23, No. 171, Vedado, La Habana

Dolores Marrero Permanyer, Especialista de la ONUDI, Comité Estatal de Colaboración Económica, Calle Primera esq. B., Vedado, La Habana

Pedro Morales, Director de Organismos Internacionales, Comité Estatal de Colaboración Económica, Calle Primera y B, Vedado, La Habana

Luis Pérez Garay, Subdirector, Empresa de Diseño Mecánico, Ministerio del Azúcar, Cuba 225, Habana Vieja, Ciudad de La Habana

Rafael Suárez Rivacoba, Jefe de Ciencia y Técnica, Ministerio del Azúcar, Calle 23 No. 171, Vedado, La Habana

Raúl Taladrid, Vicepresidente, Comité Estatal de Colaboración Económica, Calle Primera y B, Vedado, La Habana

Silvio Tejeda, Director, Información Técnica, Ministerio del Azúcar, Calle 23 No. 171 e/ N y O/, Vedado, La Habana

Alberto R. Tutor Sánchez, Representante Permanente Alterno de Cuba ante ONUDI, Embajada de Cuba, Himmelhofgasse 40, 1130 Viena, Austria

Democratic People's Republic of Korea

Che Te Ji, Consejero Comercial, Embajada de Corea, Paseo y 17, Vedado, La Habana, Cuba

Sung-Chol Pak, Traductor, Embajada de Corea, Paseo y 17, Vedado, La Habana, Cuba

Denmark

N. J. Norr, Managing Director, DDS Engineering, 1, Langebrogade, P.O. Box 2249, 1019 Copenhagen K

Joern Jensen, Project Manager, Sugar Industry Projects, DDS Engineering, 1 Langebrogade, P.O. Box 2249, 1019 Copenhagen K

Palle Nielsen, Director, Danish Union of Semi-Skilled Workers, Nyropsgade 30, DK-1504 Copenhagen

John Hansen, Head Shop Steward, De Danske Sukkerfabrikker, DDS, DK-4900 Nakskov

Dominican Republic

Jimmy García Savinón, Director Ejecutivo, Instituto Azucarero Dominicano (INAZUCAR), Edificio INAZUCAR, Avenida Jiménez Moya, Apartado 667, Santo Domingo

José Manuel Gómez, Director General de Operaciones Agroindustriales, Consejo Estatal del Azúcar (CEA), Calle Fray Cipriano de Utrera, Centro de los Héroes, Santo Domingo

Francisco de Jesús Moronta Martínez, Asesor de la Dirección Ejecutiva, Consejo Estatal del Azúcar (CEA), Calle Fray Cipriano de Utrera, Centro de los Héroes, Santo Domingo

Ecuador

Carlos Raúl Borja, Encargado de Negocios del Ecuador, Embajada del Ecuador en Cuba, Ave. 5ta. A., No. 4407 e/ 44 y 46, Miramar, La Habana, Cuba

Susana Ubidia, Técnico de Comercio Exterior, Ministerio de Industrias Comercio, Integración y Pesca, Juan León Mera y Roca Esq., Quito

Egypt

Hazem Taher, Counsellor, Epyptian Foreign Office, Egyptian Embassy, Havana, Cuba

Ethiopia

Meressa Tekle-Mariam, Head, Projects Department, Ethiopian Sugar Corporation, Addis Ababa

Finland

Teppo Takala, Embajador de Finlandia, Embaja de Finlandia en Cuba, 5ta. Avenida No. 9202, Miramar, La Habana, Cuba

Raija E. Barnes, Agregada, Embajada de Finlandia en Cuba, 5ta. Avenida No. 9202, Miramar, La Habana, Cuba

France

Christine Brochet, Direction des Nations Unies et des Organisations internationales, Ministère des Affaires étrangères, 37, Quai d'Orsay, 75007 Paris

Geneviève Jourdier, Adjoint au Chef du Bureau des plantes sacchariféres, des sucres et de l'alcool, Ministère de l'agriculture et de la fôret, Direction générale de l'alimentation, 35, rue Saint-Dominique, 75007 Paris

Fanchic Babron, Société SIASS, 50 bld. de Courcelles, 75017 Paris

Patrick du Genestoux, Managing Director, Etudes et recherches sucrières (ERSUC), 131 ave. des Champs Elysées, 75008 Paris

Louis Quillet, Directeur technique, Société d'organisation de management et de développement des industries alimentaires et agricoles (SOMDIAA), 15, rue Croix-des-Petits-Champs, 75023 Paris Cedex 01

Christian Sauzereau, Directeur Général, Société d'aménagement et de développement rural et agro-industriel (ADRA), 5, rue Michel-Ange, 75781 Paris Cedex 16

R. Areste-Balleste, Directeur des projets, Société française de réalisation, d'études et de conseil (SOFRECO), 9, rue Alfred de Vigny, 75008 Paris

Bernard Martelly, Ingénieur agronome, Agence francaise pour la maîtrise de l'énergie, 27 rue Louis Vicat, Paris

Germany, Federal Republic of

Pedro Avram-Waganoff, Project Manager, Sugar-Cane Technology, IPRO Industrieprojekt GmbH, Postfach 2921, Celler Strasse 67, 3300 Braunschweig

Goetz von Borries, Burgunderstr. 22, D7842, Kandern 5

Eberhard Killinger, Ministerial Counsellor, Ministry of Economic Co-operation, Karl Marx-Str. 4-6, D5300 Bonn 1

Ulrich Weber, Head, Investment Promotion Service, UNIDO, Unter Sachsenhausen 10-26, P.O.B. 102065, D-5000 Köln 1

Ghana

Kojo Amoo-Gottfried, Ambassador, Embassy of Ghana, 5ta. Avenida No. 1808 esq. Calle 20, Miramar, Havana, Cuba

Kodjo Asimeng Wadee, First Secretary, Embassy of Ghana, 5ta. Avenida No. 1808 esq. Calle 20, Miramar, Havana, Cuba

Guinea

Lansiné Boré, Ingénieur agronome, Analyste, Section industries agro-alimentaires, Ministère de l'industrie, commerce et artisanat (MICA), B.P. 468, Conakry

Haiti

Carnot Duval, Economist, Member of the Planning Committee of the Sugar Sector, Ministry of Commerce, Port-au-Prince

Honduras

Julio César Castillo Escober, General Manager, Azucarera Cantarranas, POB 418, Tegucigalpa D.C.

Hungary

Andrés Zsigmond, Head, Energy Section, Research Institute of Hungarian Sugar Industry, Voroshadsereg út 61, H-5000, Szolnok

Károly Hangyál, General Manager, Research Institute of Hungarian Sugar Industry, Vöröshadsereg út 61, H-5000 Szolnok

Indonesia

Poerwadi Djojonegoro, President Director, Private Sugar Enterprises XXIV/XXV, Surabaya 00175

Kisdarto Atmosoeprapto, Head, General Division, Indonesian Sugar Council, Jl. Salemba Raya 16, Jakarta

Mali

Elie Abdoulaye Diallo, Directeur général adjoint, Complexe sucrier du Kala Supérieur (SUKALA), Dougabougou, B.P. 179, Ségou

Adama Konate, Chef de division des études de projets, Direction nationale des industries, B.P. 278, Bamako

Mauritius

Gowreeshankursing Rajpati, Executive Director, Mauritius Sugar Authority/Apex Organisation, 2nd floor, Ken Lee Building, Edith Cavell Str., Port Louis

E. L. René Noel, Executive Chairman/Managing Director, Compagnie Sucrière de Beau-Vallon Ltde., Sir William Newton Street, Port Louis

Mexico

Rudy O. Albertos Cámara, Subdirector de Planeación y Desarrollo de Azúcar S.A., Ave. Insurgentes Sur 1079, 4º piso, 03120 México, D.F.

Luis E. Zedillo Ponce de León, Coordinador General de Investigación Tecnológica en el Instituto para el Mejoramiento de la Producción de Azúcar (IMPA), AZUCAR, S.A. de C.V., Tuxpan No.2-12º piso, 06760 México, D.F.

Nepal

Durga Prakash Panday, Chairman and General Manager of Birgung Sugar Mill Factory Limited, Birgung, Kathmandu

Nigeria

I. A. Osunbunmi, Assistant Director, Agro-Allied Division, Federal Ministry of Industries, P.M.B. 85, Abuja

Song Abubakar Ahmed, General Manager, Savannah Sugar Co. Ltd., Km 80 Numan Combe Road, P.M.B. 2230, Yola

Folahan Adeola Dere, Acting General Manager, Nigerian Sugar Company, Bacita, P.M.B.65, Bacita, Jega

Oluremi Adeitan Aribisala, Director, Raw Material Research and Development Council, 28 Berkley Street, Lagos

Michael Fregene, Second Secretary, Embassy of Nigeria, 5th Avenue No. 1401, Miramar, Havana, Cuba

Philippines

Ariston E. Barsana, First Secretary and Consul, Embassy of the Philippines, Miramar, Havana, Cuba

Sao Tomé and Principe

María José dos Santos Rita, Ingénieur en alimentations publiques/technologiques, Ministère de l'économie et finances, Direçao de Indústria e Energia, Cx. Postal 198, Sao Tomé

Sudan

Mahdi Beshir Mohamed Ali, General Manager, Assalaya Sugar Company, Khartoum

Mohamed Mahmoud Adam Abbadi, Production Manager, Gunneid Sugar Company, Khartoum

Sweden

Karl Eric Andersson, Manager, SSA Technology, Agricultural Engineering Department, Sockerbolaget AB, S-245 00 Staffanstorp

Christer Juntti, Project Manager, SSA Technology, Agricultural Engineering Department, Sockerbolaget AB, S-245 00 Staffanstorp

Trinidad and Tobago

Ivan Chapman, Senior Project Analyst, Ministry of Planning and Mobilization, Port-of-Spain

Rawle Biran, Industrial Research Officer, c/o Rum Division, CARONI (1975) Ltd., Old Southern Main Road, Caroni

Earl Errol Timothy, Director, Project Implementation Unit, Ministry of Food Production, Marine Exploitation, Forestry and Environment, St. Clair Circle, St. Clair, Port-of-Spain

Union of Soviet Socialist Republics

M. Puzikov, Deputy Chief, Sugar Industry Department, USSR GOSAGROPROM, Moscow

A. Goldabenkov, Senior Expert, USSR Committee for Science and Technology, Gorky Street, Moscow 11

N. Koukharev, Deputy Director, Department of V/O VNESHTEHNIKA, 119034 Moscow

Vladimir Chopik, Asesor del Dpto. de Desarrollo y Técnica del Ministerio del Azúcar, Rpto. Naútico, Calle 156, No. 305, La Habana, Cuba

United Kingdom of Great Britain and Northern Ireland

John Michael Ayres, Processing Director, Booker Tate Agribusiness Ltd., Masters Court, Church Road, Thame, Oxford OX9 3FA

Patrick John Watson, Consulting Engineer, Lonrho PLC., Cheapside House, 138 Cheapside, London EC2V 6BL

United Republic of Tanzania

Iskander John Tenga, Manager, Technical Services, Small Industries Development Organisation (SIDO), P.O. Box 2476, Dar es Salaam

Venezuela

Dulce María Parra Fuentes, 2do. Secretaria, Embajada de la República de Venezuela en Cuba, Calle 36A entre 7 y 42, Miramar, La Habana, Cuba

Alcides José Rodríguez Alvarez, Delegado, Embajada de la República de Venezuela en Cuba, Calle 36A entre 7 y 42, Miramar, La Habana, Cuba

Viet Nam

Nguyen Thai Binh, Consejero Comercial de Viet Nam, Calle 16 No. 514 entre 5ta. y 7ma., Miramar, La Habana, Cuba

Yugoslavia

Djordje Spanović, Expert in food-processing industry, Slavonski Brod, Inzinjering, Novi Sad

Vera Stajković, 1er. Secretaria de la Embajada de Yugoslavia, Calle 42 No. 115, Miramar, La Habana, Cuba

Zambia

Patrick C. Mwiinde, Research Manager, Sugar Cane Production, Zambia Sugar Company Limited, Nakambala Estate, P.O. Box 240, Mazabuka

United Nations bodies

United Nations Development Programme (UNDP)

Constance Muzio, Resident Representative, Calle 18 No. 110, entre 1ª y 2ª, Miramar, Playa, Havana, Cuba

L. Frieiro, UNDP, Calle 18 No. 110, entre 1ª y 2ª, Miramar, Playa, Havana, Cuba

A. Schmid, UNDP, Calle 18 No. 110, entre 1ª y 2ª, Miramar, Playa, Havana, Cuba

Intergovernmental organizations

Commonwealth Secretariat

Anthony Polatajko, Assistant Director, Industrial Development Unit, Commonwealth Fund for Technical Co-operation, Marlborough House, Pall Mall, London SW1Y 5HX, United Kingdom

Group of Latin American and Caribbean Sugar Exporting Countries (GEPLACEA)

José A. Cerro Castiglione, Secretario Ejecutivo, GEPLACEA, Ejército Nacional 373-1er piso, Col. Granada, C.P. 11520, México DF, México

Manuel Rico Santos, Coordinación de todo lo referente a Mercado y Estadísticas Azucareras, GEPLACEA, Ejército Nacional 373, 1er piso, Col. Granada, C.P. 11520, México DF, México

Ramón Carlos Torres, Gerente de Promoción Industrial, Petróleos Mexicanos, Ejército Nacional 216 - piso 14, Col. Anzureg, 11590 México DF, México

Herly Noa Silverio, Directora del Programa de Diversificación, GEPLACEA, Ejército Nacional 373-1er Piso, Col. Granada, C.P. 11520, México DF, México

Romeu Boto, GEPLACEA, Ejército Nacional 373-1er piso, Col. Granada, C.P. 11520, México DF, México

International Sugar Organization (ISO)

A. C. Hannah, Head Economist, Economics and Statistics, Haymarket House, 28 Haymarket, London SW1Y 4SP

Other organizations

International Commission for Uniform Methods of Sugar Analysis (ICUMSA)

Dulce Ma. Martínez, Vice-President, ICUMSA, Havana, Cuba

Annex II

LIST OF DOCUMENTS

Issue papers

Issue 1: Diversification of the sugar-cane industry	ID/WG.476/4
Issue 2: Improvement of the productivity in the sugar-cane sector	ID/WG.476/5

Background documents

The diversification of the sugar-cane industry: Background paper for issue I	ID/WG.476/2
Improvement of the productivity in the sugar-cane sector: Background paper for issue II	ID/WG.476/3
Study on the market aspects of by-products: Diversification of the sugar industry	ID/WG.476/1
Review on the bagasse particleboard production technology in China	ID/WG.476/6
The sugar-cane processing industry and diversification of the industry in China	ID/WG.476/7

Information documents

The diversification of the cane sugar industry in Latin America and the Caribbean	ID/WG.471/1(SPEC.)
Diversification of sugar-cane	ID/WG.471/2(SPEC.)
Some aspects of UNIDO's technical assistance activities in the sugar industry	ID/WG.471/3(SPEC.)
The sugar-cane industry and sugar cane by-products in Latin America	ID/WG.471/4(SPEC.)
Report. Expert Group Meeting for the Latin American and Caribbean Region, in Preparation for the First Consultation on the Sugar-cane Processing Industry Vienna, Austria, 8-10 December 1987	ID/WG.471/5(SPEC.)
Sugar situation in Africa, Asia, Latin America and the Caribbean, and Oceania: Problems and solutions	IPCT.54(SPEC.)
Report. Expert Group Meeting for the Asian and Pacific Region, in Preparation for the First Consultation on the Sugar-cane Processing Industry Guangzhou, People's Republic of China, 22-24 March 1988	IPCT.58(SPEC.)

UNIDO ONUDI

SYSTEM OF CONSULTATIONS | SYSTEME DE CONSULTATIONS | SISTEMA DE CONSULTAS

Documentation Service

Please, return to:
UNIDO
System of Consultations
P.O. Box 300
A-1400 Vienna, Austria

Service de documentation

Prière de retourner à :
ONUDI
Système de Consultations
B.P. 300
A-1400 Vienne, Autriche

Servicio de Documentación

Sírvase devolver a :
ONUDI
Sistema de Consultas
P.O. Box 300
A-1400 Viena, Austria

PLEASE PRINT VEUILLEZ ECRIRE EN LETTRES D'IMPRIMERIE SIRVASE ESCRIBIR EN LETRAS DE IMPRENTA

(1) Last name - Nom de famille - Apellido

(2) First name (and middle) - Prénom(s) - Nombre(s)

(3) Mr./Ms. - M./Mme - Sr./Sra.

(4) Official position - Fonction officielle - Cargo oficial

(5) Name of organization *in full* - Nom de l'organisation *en toutes lettres* - Nombre *completo* de la organización

(6) Official address - Adresse officielle - Dirección oficial

(7) City and country - Ville et pays - Ciudad y país

(8) Telephone – Téléphone - Teléfono

(9) Telex

(10) If you wish to receive our documents, please indicate sectors of interest
Si vous souhaitez recevoir nos documents, veuillez indiquer les secteurs d'intérêt
En caso de que desee recibir nuestros documentos, sírvase indicar los sectores de interés para Ud.

COUNTRY / ORGANIZATION

Printed in Austria
V.88-30259-November 1988-2,550

ID/362
(ID/WG.476/8)